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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/748,589	12/22/2000	Roger W. March	10519/9	2666

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EXAMINER

PORTKA, GARY J

ART UNIT	PAPER NUMBER
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2187

DATE MAILED: 12/13/2001

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.
09/748,589

Applicant
March et al.

Examiner
Gary J. Portka

Art Unit
2187



-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on Dec 22, 2000

2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1-125 is/are pending in the application.

4a) Of the above, claim(s) 1-103 is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 104-125 is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.

12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a) ☐ All b) ☐ Some* c) ☐ None of:

- ☐ Certified copies of the priority documents have been received.
- ☐ Certified copies of the priority documents have been received in Application No. _____.
- ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15) ☒ Notice of References Cited (PTO-892)

18) ☐ Interview Summary (PTO-413) Paper No(s). _____

16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

19) ☐ Notice of Informal Patent Application (PTO-152)

17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6 and 8

20) ☐ Other: _____

Art Unit: 2187

DETAILED ACTION

Election/Restriction

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-9, drawn to method for storing data in write-once memory device using indication of minimum number of cells that can be written, classified in class 711, subclass 101.
 - II. Claims 10-23, drawn to method for overwriting memory data using destructive pattern and disregarding error code, classified in class 714, subclass 710.
 - III. Claims 24-32, drawn to method for storing files by allowing second file to be stored in available lines previously allocated to first file, classified in class 707, subclass 205.
 - IV. Claims 33-70, drawn to method of storing files by reserving at least one memory cell for a file system structure, classified in class 707, subclass 100.
 - V. Claims 71-82, drawn to method for permanently preventing modification of a partition of memory, classified in class 711, subclass 163.
 - VI. Claims 83-103, drawn to method for identifying memory cells storing data using an identification pattern stored in the memory, classified in class 711, subclass 154.
 - VII. Claims 104-125, drawn to write-once and/or three-dimensional memory device which generates and stores ECC with data, classified in class 714, subclass 52.
2. The inventions are distinct, each from the other because of the following reasons: Inventions I through VII are related as subcombinations disclosed as usable together in a single combination.

Art Unit: 2187

The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, each invention has separate utility such as described above, without regard to whether elements of any of the other groups are present. See MPEP § 806.05(d).

3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

4. During a telephone conversation with John Hetz on October 29, 2001 a provisional election was made with/without traverse to prosecute the invention of Group VII, claims 104-125. Affirmation of this election must be made by applicant in replying to this Office action. Claims 1-103 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(I).

6. The Office acknowledges receipt of the following:

- a. Preliminary Amendment, dated July 19, 2001.
- b. Substitute Declaration, dated August 13, 2001.

Art Unit: 2187

Information Disclosure Statement

7. The information disclosures submitted July 30, 2001 (paper no. 6) and October 9, 2001 (paper no. 8) were considered. The lined out references on page 2 of paper no. 6 are more appropriately listed as the first section of the specification under CROSS REFERENCE TO RELATED APPLICATIONS.

Specification

8. Applicant is requested to update Application numbers and status of co-pending applications listed at pages 1, 3, 8, and 18, and listed in the supplemental IDS (which as stated in the previous paragraph, should be done at the beginning of the specification).

9. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112

10. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

11. Claims 107, 112, 116, and 119 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. These claims each recite that the memory is selected from a group consisting of semiconductor-transistor-technology-based, magnetic-based, and organic-electronics-based devices.

Art Unit: 2187

These types are disclosed at page 7 line 29 to page 8 line 3, but it is not disclosed how these devices are implemented as the recited write-once and/or three-dimensional devices. In other words, it is not readily apparent to the examiner that the specification describes how all the recited technologies may be made into the recited write-once and/or three-dimensional devices. Is Applicant's position that this would have been readily known by one of ordinary skill in the art?

Claim Rejections - 35 USC § 102

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 104, 108, 109, and 113 are rejected under 35 U.S.C. 102(b) as being anticipated by Shirane, U.S. Patent 5,796,694 (hereinafter "Shirane").

14. As to claims 104 and 108, Shirane discloses write-once optical memory device and method therefor (see column 1 lines 27-30), ECC circuitry generating at least one ECC bit based on at least one data bit and storing them in a plurality of write-once cells (see column 1 lines 14-30, and column 2 lines 15-21, also Figures 2-7). Also, as to claims 109 and 113, the ECC circuitry may be considered integrated with the device to the extent claimed.

15. Claims 104, 108, 109, and 113 are rejected under 35 U.S.C. 102(b) as being anticipated by Sako et al., U.S. Patent 5,835,509 (hereinafter "Sako").

16. As to claims 104 and 108, Sako discloses write-once optical memory device and method therefor (see column 1 lines 10-15, and column 7 lines 25-30 and 39-42), ECC circuitry generating

Art Unit: 2187

at least one ECC bit based on at least one data bit and storing them in a plurality of write-once cells (see column 1 lines 36-44, and column 13 line 41 to column 14 line 12). Also, as to claims 109 and 113, the ECC circuitry may be considered integrated with the device to the extent claimed.

17. Claims 114, 117, 120, 122, 123, and 125 are rejected under 35 U.S.C. 102(b) as being anticipated by Carson et al., U.S. Patent 5,432,729 (hereinafter "Carson").

18. As to claims 114, 117, 120, 123, and 125 Carson discloses a three-dimensional electronic memory device, system, and method (see Abstract, column 1 lines 16-25, and column 3 lines 41-46) comprising ECC circuitry (see Figures 7-10, column 4 lines 10-30), receiving at least one data bit, one ECC bit generated by the ECC circuitry based on the data bit which both are stored (see column 9 lines 48-53, column 12 lines 20-24 and 41-61, column 13 lines 52-56, and column 14 lines 38-49).

19. As to claim 122, the ECC is part of the file system to the extent claimed, since the ECC circuitry is used with register files (see Figure 9).

Claim Rejections - 35 USC § 103

20. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

21. Claims 105-106, 110-111 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shirane, in view of Zhang, U.S. Patent 5,835,396 (hereinafter "Zhang"), or over Shirane in view of

Art Unit: 2187

Johnson et al., U.S. Patent 6,034,882 (hereinafter "Johnson"), or over Sako in view of Zhang, or over Sako in view of Johnson.

22. As to claims 105-106, and 110-111, neither Shirane nor Sako disclose that the write-once device is a three-dimensional electronic device. However, Zhang teaches that a write-once memory device is advantageously implemented by a three-dimensional electronic device for improving density (see Abstract, column 1 lines 14-16 and 63-67, and column 2 lines 3-4 and 16-19). Also, Johnson teaches similarly implementing a write-once device as a three-dimensional electronic device to increase the memory density (see Abstract, column 1 lines 14-60, and column 4 lines 11-22). Thus since the technology for implementing a write-once device as an electronic device was well known, and that a three-dimensional electronic device increases the memory density, an artisan would have been motivated to implement a write-once device in Shirane or Sako in this manner. Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to use a three-dimensional electronic device, because write-once electronic devices were well known, and a three-dimensional device improves the memory density.

23. Claims 115, 118, and 124 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carson in view of Zhang, or over Carson in view of Johnson.

24. As to claims 115, 118, and 124, Carson does not disclose that the three-dimensional electronic device is a write-once device. However, Zhang teaches that a write-once memory device is advantageously implemented by a three-dimensional electronic device for improving density (see Abstract, column 1 lines 14-16 and 63-67, and column 2 lines 3-4 and 16-19); the motivation to

Art Unit: 2187

implement a three-dimensional device as write-once clearly follows simply due to the desire to have well known write-once capability. Also, Johnson teaches similarly implementing a write-once device as a three-dimensional electronic device to increase the memory density (see Abstract, column 1 lines 14-60, and column 4 lines 11-22). Thus since the technology for implementing a write-once device as an electronic device was well known, and that a three-dimensional electronic device increases the memory density, an artisan would have been motivated to implement a three-dimensional device in Carson in this manner. Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to use a write-once device, because write-once electronic devices were well known design implementations of memory, and a three-dimensional device improves their memory density.

25. Claims 107 and 112 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shirane, in view of Zhang, further in view of Peterson et al., U.S. Patent 6,016,269 (hereinafter "Peterson"), and further in view of Gudesen et al., U.S. Patent 6,236,587 B1 (hereinafter "Gudesen"); or over Shirane, in view of Johnson, further in view of Peterson, and further in view of Gudesen; or over Sako in view of Zhang, further in view of Peterson, and further in view of Gudesen; or over Sako in view of Johnson, further in view of Peterson, and further in view of Gudesen.

26. Claims 116 and 119 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carson in view of Peterson, and further in view of Gudesen.

27. As to claims 107 and 112, the Shirane-Zhang, Shirane-Johnson, Sako-Zhang, and Sako-Johnson combinations described above disclose that the write-once memory is semiconductor based.

Art Unit: 2187

Neither Shirane, nor Sako, nor Zhang, nor Johnson disclose that the write-once device is magnetic based or organic based.

As to claims 116 and 119, the Carson-Zhang and Carson-Johnson combinations described above disclose that the write-once memory is semiconductor based. Neither Carson, nor Zhang, nor Johnson disclose that the write-once device is magnetic or organic based.

However, Peterson teaches at column 1 line 55 to column 2 line 40 that magnetic memories provide a good combination of error-rate, ease of manufacture, and size. These advantages would have motivated an artisan to use this type of memory in the above systems.

Additionally, Gudesen teaches at column 3 lines 1-17 that the use of organic based devices increases flexibility on technical solutions at a reduced cost. This advantage would have motivated an artisan to use this type of memory in the above systems.

Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to implement any of the above systems using magnetic or organic based devices, because these are known technologies that respectively provide a good blend of manufacturing ease, error-rate, and size, and flexibility at reduced cost.

28. Claim 121 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carson, in view of Hayashi, U.S. Patent 5,708,667.

29. As to claim 121, Carson does not disclose that the ECC generator is implemented in software. However, the implementation of ECC in software was well known in the art; Hayashi describes an ECC implemented in software, as shown in Figure 1 and described at column 3 line 11 to column 4

Art Unit: 2187

line 13, and at column 7 lines 37-39. An artisan is well aware of the advantages of updatability and adaptability provided by an implementation in software, and these advantages would have motivated one to implement the ECC of Carson in this manner. Thus it would have been obvious to one of ordinary skill in the art at the time of the invention to implement the ECC in software, because this is well known and provides the system adaptability and updatability.

Conclusion

30. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Patent No.

6,216,247 B1	ECC generator and ECC decoder.
6,185,122 B1	Vertically stacked field programmable non-volatile memory.
5,943,254	Multichip semiconductor structure.

31. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) days from the mail date of this letter. Failure to respond within the period for response will result in Abandonment of the application (see 35 USC 133, MPEP 710.02, 710.02(b)).

32. Any inquiry concerning this communication from the examiner should be directed to Gary J. Portka at telephone number (703) 305-4033. The examiner can normally be reached on weekdays from 9:00 A.M. to 5:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Do Yoo, can be reached at (703) 308-4908.

Any response to this action should be mailed to (or faxed as provided below):

Art Unit: 2187

Commissioner of Patents and Trademarks
Washington, D.C. 20231

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive,
Arlington, VA., Fourth Floor (Receptionist).

The fax phone number for the organization where this application or proceeding is assigned
are as follows:

(703) 746-7238 (After Final communications)

(703) 746-7239 (Official communications)

(703) 746-7240 (Status inquiries, draft communications)

Any inquiry of a general nature relating to this application or proceeding should be directed
to the Group receptionist, whose telephone number is (703) 305-3900.

Gary J. Portka



Patent Examiner

December 10, 2001